

**INDIVIDUAL AND MARKET DEMAND. REVERSE DEMAND FUNCTION.**

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**Annotation:** *Individual and market demand in this article. Opinions on the inverse demand function are given.*

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We look at the mid-sized campus apartment market. we divide these apartments into two types. i.e., the apartments close to the university are assumed to be located within the first circle, let's say the remaining apartments are located outside the first circle, these apartments are located within the second circle. Apartments located within the first circle are more economically attractive. For students living in these apartments, going to and from school is very convenient and does not cost much. Students living outside the first circle spend a lot of time going to university, spending a lot of time on the bus. What interests us is the apartments in the first circle, who lives in them, how the price of the apartments is determined.

Suppose there are many apartments in the outer circle, students who are not in the inner circle can be accommodated in one of the apartments in the outer circle. The price of apartments in the outer circle is not determined by the model we are looking at, so these prices are considered as xogenic variables, the price of apartments in the inner circle is determined by the model we are looking at, and these indicators are considered endogenous.

Simplification: apartments are all the same type, they differ only in location. Therefore, we are talking only about the price of apartments.

Using this model, we seek answers to the following questions: what determines the price of apartments ?, who rents an apartment from within the apartment ?, how to determine the economic mechanism of apartment distribution?

Optimization and balance

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Optimization: Let's choose the best content from the product content options that people can consume.

Equilibrium: in this case, the change in prices continues until demand is equal to supply.

According to the first principle, when people are free to choose, they choose what they need.

Analyzing the second principle, it can be said that supply and demand may not be equal at any given time. Balancing takes some time. This can lead to a series of changes over time that can lead to imbalance. However, in the simple model we are looking at, demand equals supply.

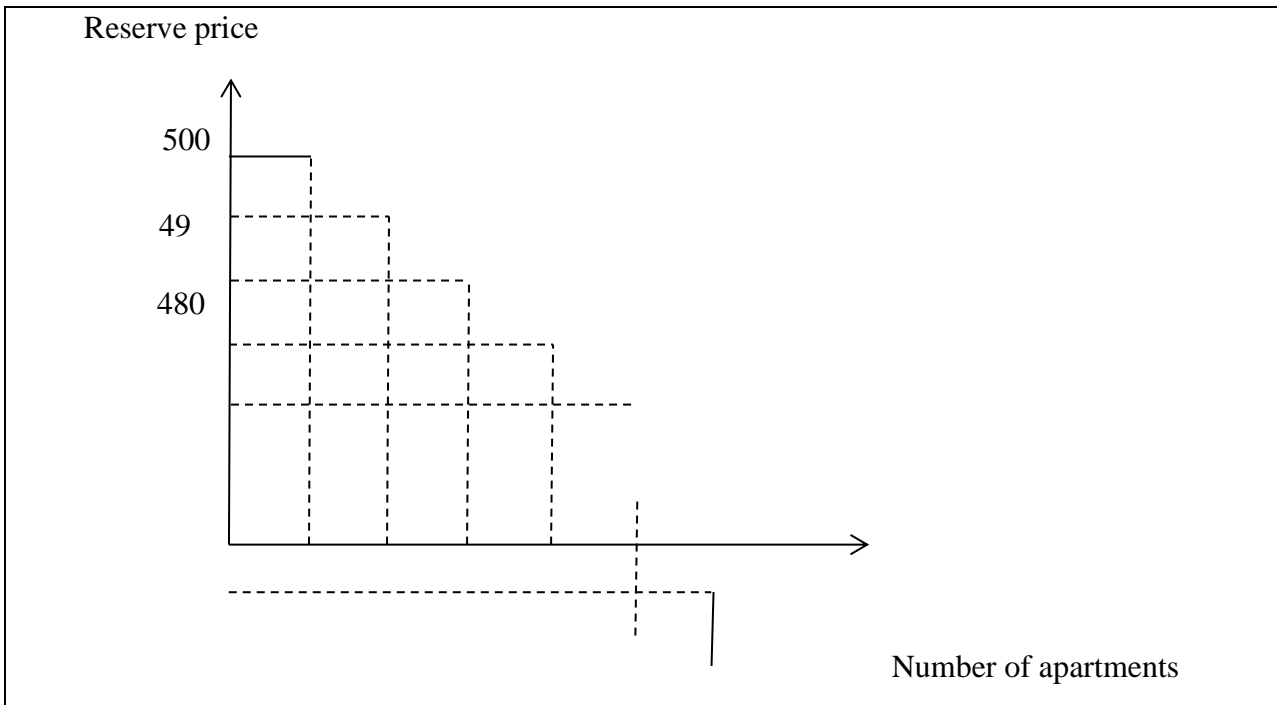
It should be noted that equilibrium is determined in different models. In a simple market model, equilibrium is determined by the equality of demand to supply. For models in the broadest sense, the concept of equilibrium is also broad and general.

The demand line is the ratio of the amount of demand to the price, i.e. it indicates how many rental apartments are rented at a given price.

Suppose we surveyed tenants of an apartment to find out who could pay the maximum price for an apartment. One of the tenants said he would pay \$ 500 a month. So, if one tenant pays \$ 500 a month for an apartment, then one apartment is rented. The second tenant said he was willing to pay \$ 490 a month. If the market price of the apartment is \$ 490, two apartments will be rented. One to the \$ 500 payer and the other to the \$ 490 payer.

When a person is willing to pay the maximum price for a service or good, that price is called the reserve price of that individual. The reserve price is the highest price that an individual can pay for a good. However, an individual may or may not purchase a good at that reserve price. At the reserve price, it does not matter whether the person buys the goods or not.

**Figure 1. Apartment demand line.**

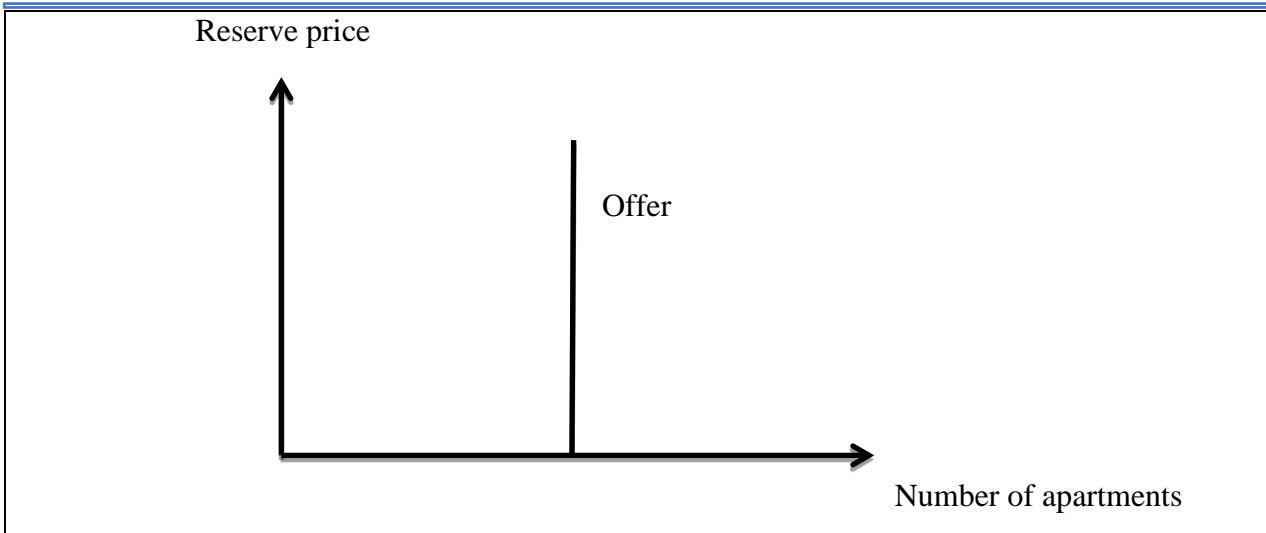


**Offer line**

Such a market is called a competitive market if there are many homeowners who rent out the house and they set an independent price independently of each other. There are other types of markets as well. We look at a market where there are a lot of homeowners. If the tenants have information about the price of the apartments, then the equilibrium price for the apartments within the inner circle will be the same. Another issue is time interval. If we look at a long-term interval, for example 1 year or 2 years, then if a house is built in this interval, the number of apartments corresponds to the price set for them. We consider a short-term interval in which the number of apartments does not change and it is equal to one number.

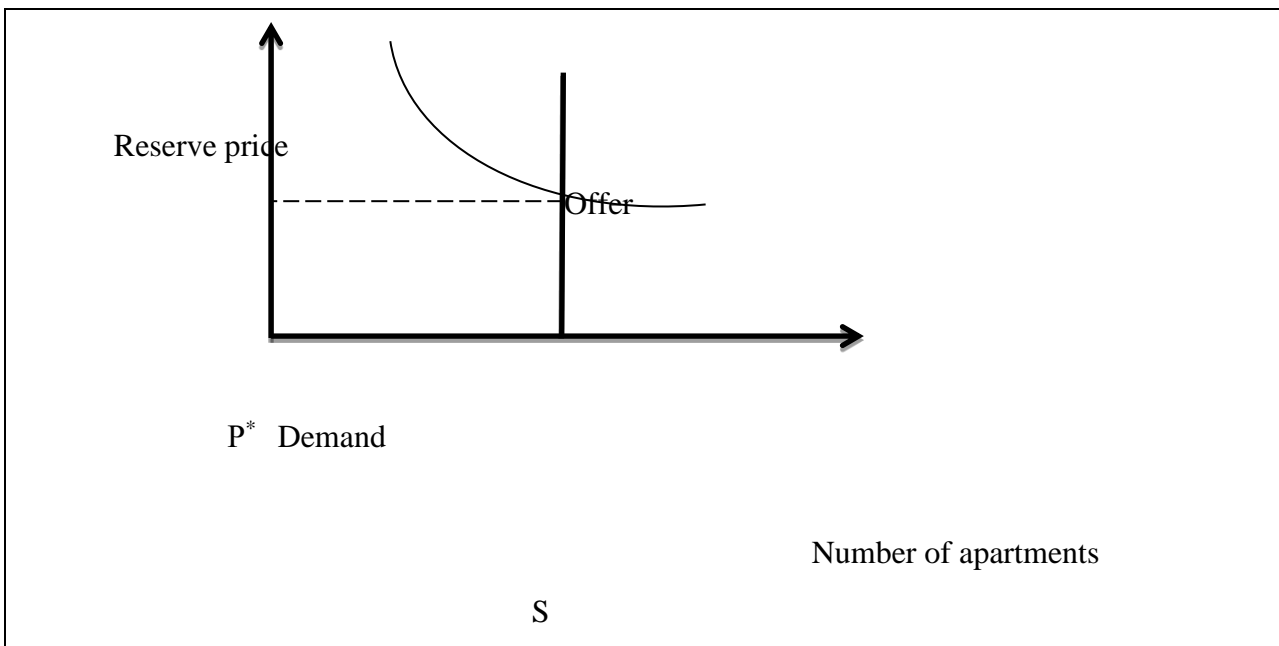
In the apartment market, the supply line has a vertical view (Figure 2). All apartments are rented at any given price.

**Figure 2. Short-term supply line.**



We find the equilibrium point by plotting the supply and demand line on a single graph (Figure 2).

**Figure 3 Equilibrium state of apartments in the market.**



Equilibrium price on this chart  $P^*$ ,  $S$  – number of apartments for rent  $P^*$  the demand for apartments at equilibrium price is equal to the number of apartments for rent. This situation satisfies both tenants and landlords. This condition is therefore called the equilibrium state.

If the apartment price  $R$  is less than the equilibrium price  $P < P^*$ , in which case the number of tenants will exceed the number of apartments offered in the inner circle. Queues appear when you get an apartment. In return, landlords raise rents.

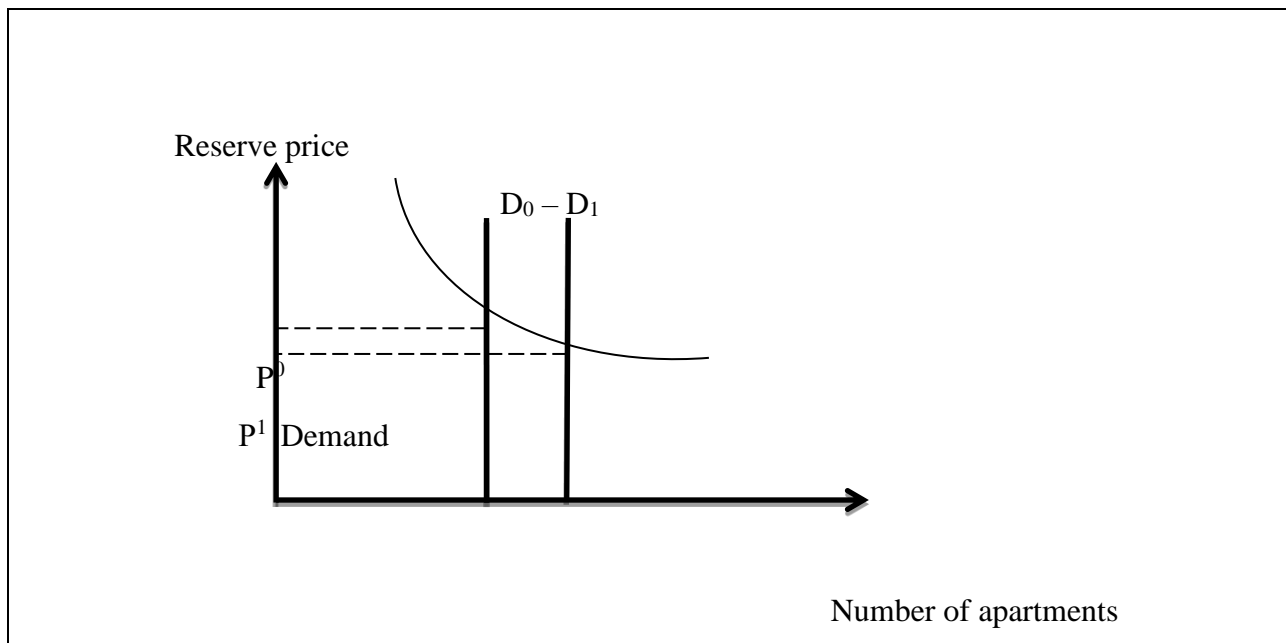
Similarly, if the rental price is higher than the equilibrium price  $P > P^*$ , in which case a number of apartments will not be rented. Landlords lower the rent for fear of not being able to get the rent.

So just balance  $P^*$  the number of apartments to be rented at the price is equal to the number of apartments to be rented by the landlords. Only at equilibrium price is demand equal to supply, only at equilibrium price is the behavior of tenants and the behavior of landlords compatible.

Determining the market price for apartments in the inner circle can answer the question of who gets an apartment inside the inner circle, who gets a place inside the outer circle. In our model, the answer to this question is simple. When the market is in equilibrium, whoever can pay the rent at  $R^*$  or higher rents an apartment within the inner circle, whoever cannot pay the  $R^*$  price rents an apartment from the outer circle.

If a person's reserve price is equal to  $R^*$ , it does not matter to him whether he is in the inner circle or outside. Other tenants who rent an apartment from the inner circle will rent the apartment at a price lower than the maximum price they can afford. Thus, the apartments are distributed among the tenants according to how much they can pay for the apartment.

**Figure 4. Increased supply of apartments.**



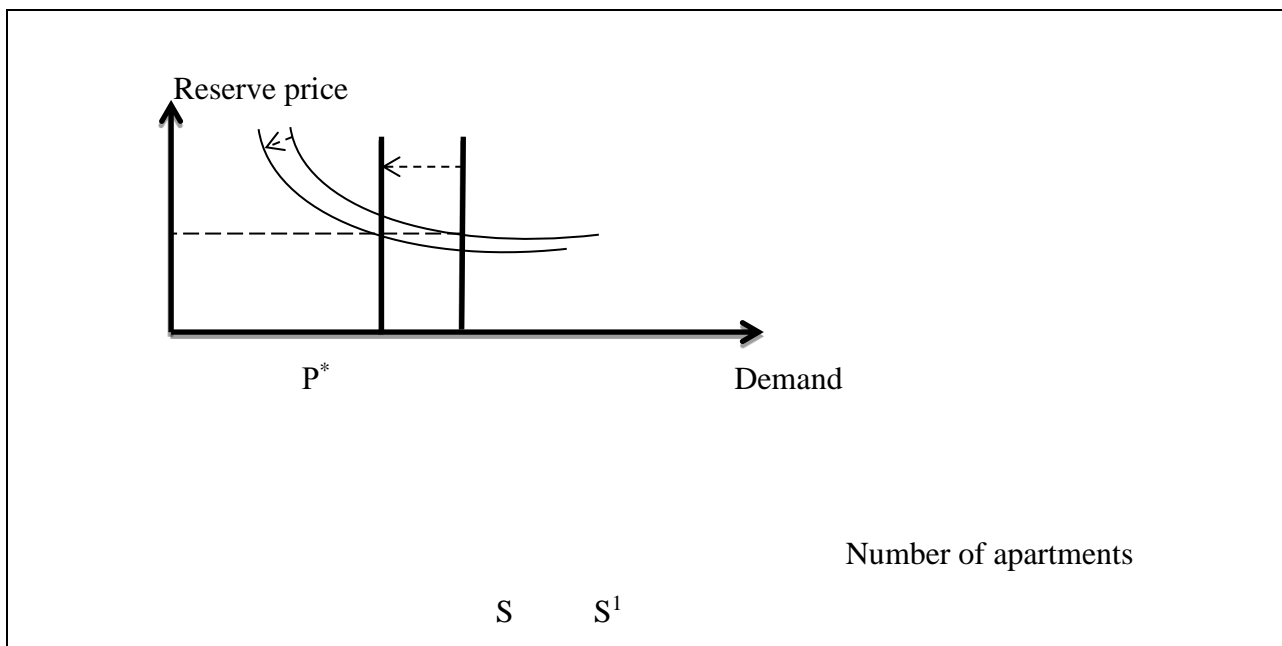
If the equilibrium price  $R^*$  decreases, the equilibrium price would increase if the supply was reduced.

If the supply and demand lines move the same amount to the left or to the right, the equilibrium price does not change, Fig. 6.

Suppose the city government set a tax of \$ 50 per year for apartments. Each landlord pays \$ 50 a year in taxes for each apartment they own. How the tax affects the price of the apartment.

Many think that part of the tax will go to the tenants. In fact, this is not the case, the equilibrium price of the apartment does not change. With the introduction of the tax, the supply line will not change, the number of apartments will remain the same after the tax as before. The demand line will also not change, as the number of apartments purchased by students at each price will remain the same. If neither the demand line nor the supply line shifts, the price will not change with the tax setting.

**Figure 5. The equilibrium price does not change when the supply and demand lines move the same amount to the left.**



The fact that the tax does not lead to a change in price can be explained as follows. Prior to taxation, homeowners had asked for the highest price for their apartments. The equilibrium price  $R^*$  was the highest price at which all apartments were rented. Homeowners cannot cover the price once the tax is set. If they could raise the price of an apartment, they could have done it in advance. In this case, no tax can be transferred to the tenants. Homeowners are required to pay the full amount of tax.

Such an analysis is based on the fact that the number of apartments does not change. If the tax setting changes the number of apartments, the price paid by tenants will change.

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